

Federal Utility Partnership Working Group
Omaha, Nebraska



Metering Case Study
Warner Robins Air Logistics Center
Robins AFB, GA

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April 16, 2002

Presentation Outline

- Meters – What purpose do they serve?
- The Customer
- The Application
- Results

What Purpose Do Meters Serve?

- Collect energy consumption data
- Establish energy use patterns
- Detect malfunctions
- Allocate cost
- Promote/measure energy savings
- Demand reduction

The Customer

Warner Robins Air Logistics Center

- Major industrial facility
- 8,722 acres
- 19,800 employees
- Over 45 reimbursable tenants
- 645 buildings
- Energy cost >\$12 million annual



The Customer

C-141 Starlifter



C-130 Hercules



F-15 Eagle



C-5A Galaxy



The Problem

- Needed to get a handle on Energy consumption (EO 12192)
- Needed to provide Energy consumption data to tenants on a more timely basis (monthly) and with a greater level of accuracy
- Needed to collect from reimbursables
- No added work load to existing staff

Solution

- Install Automated Metering Reading (AMR) System

The Application

Collect Energy Consumption Data

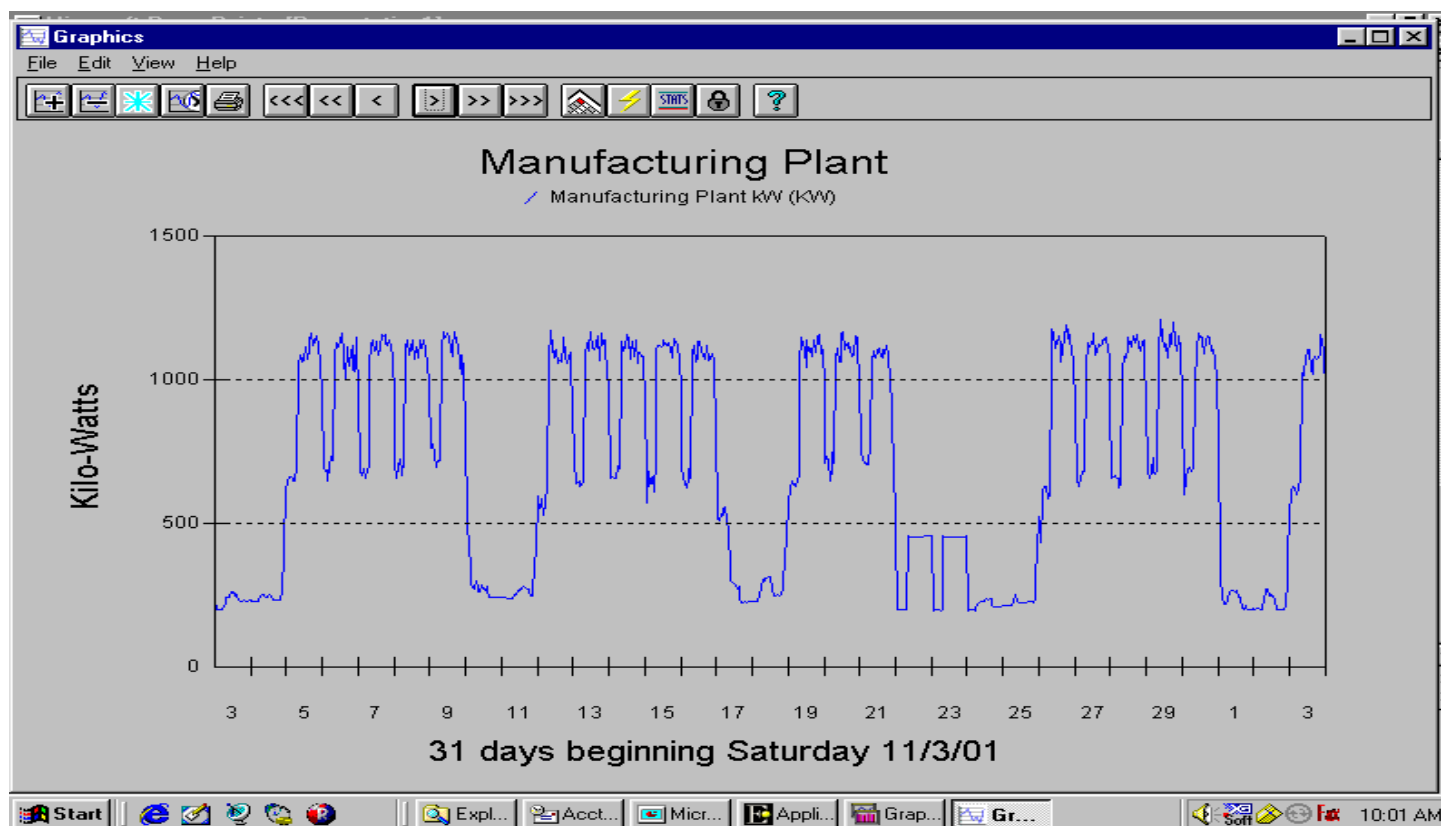
- Installed utility-grade recording meters
- Electricity, gas, water, steam, chilled water, hot water, air temperature
- Readings automated using phone lines
- Southern Company's EnerLink system used
 - Collect data
 - Analyze data
 - Generate bills

The Application

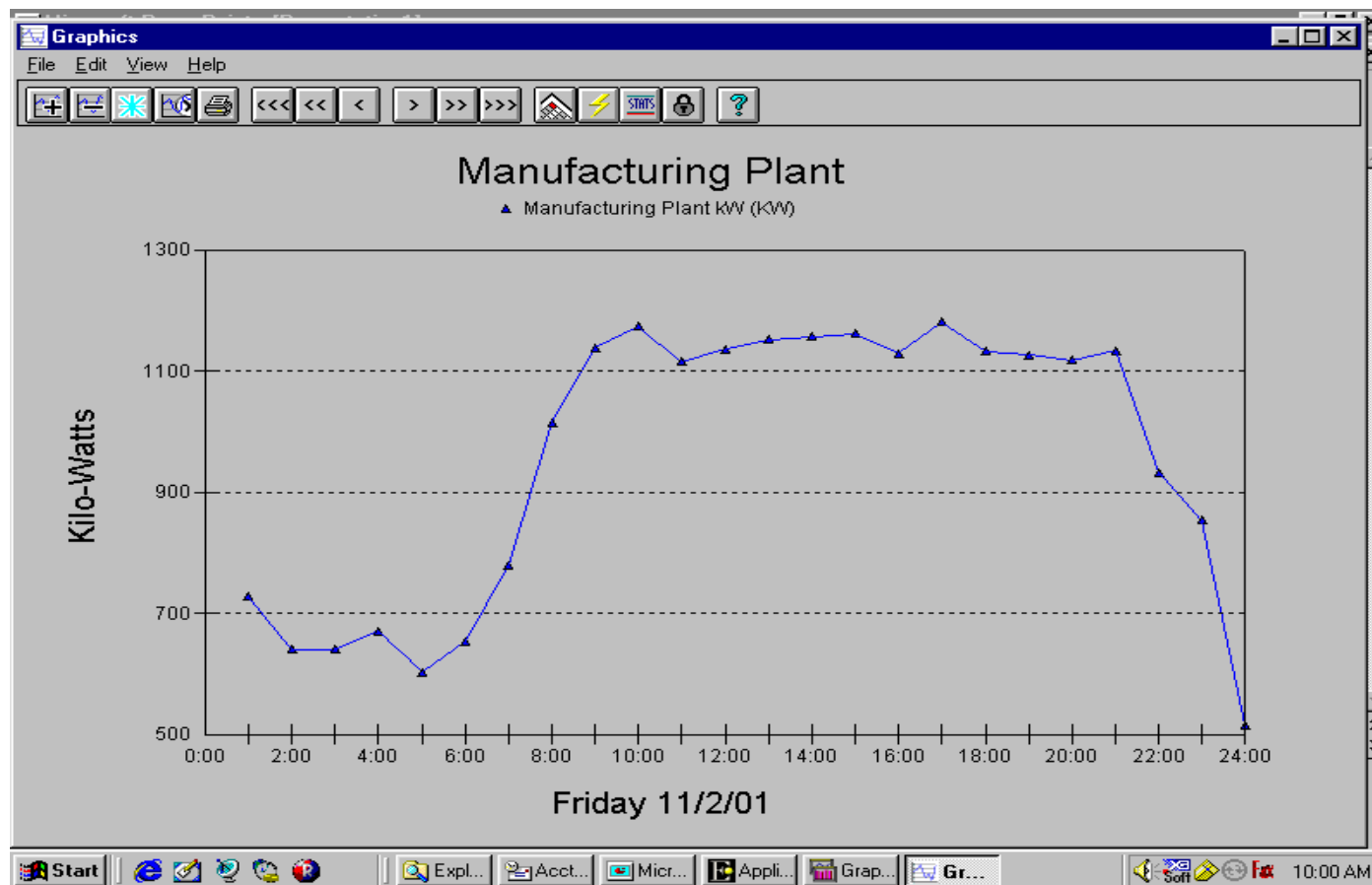
Establish Energy Use Patterns

- Captured 90% of on-base energy use
- Record and download 30-minute interval load data
- Data downloaded several times per month
- Developed representative building load shapes for comparison and benchmark purposes

Monthly Load Shape



Building Load Shape



The Application

Detect Equipment Malfunctions

- Load shapes analyzed for variations
- Compared day v. night demand level in Administrative building
 - Day = 653 kW, night = 540 kW ???
- Monitored remote pumping site operations
 - Intermittent operation signals imminent equipment failure

The Application

Cost Allocation to Tenants

- 45 reimbursable tenants, 645 buildings, 6 energy forms
- Automatic generation of monthly bills, including all energy forms used
- Able to include impact of demand as well as consumption on billed amount
- High customer confidence in meter readings

The Application

Promote/Measure Energy Savings

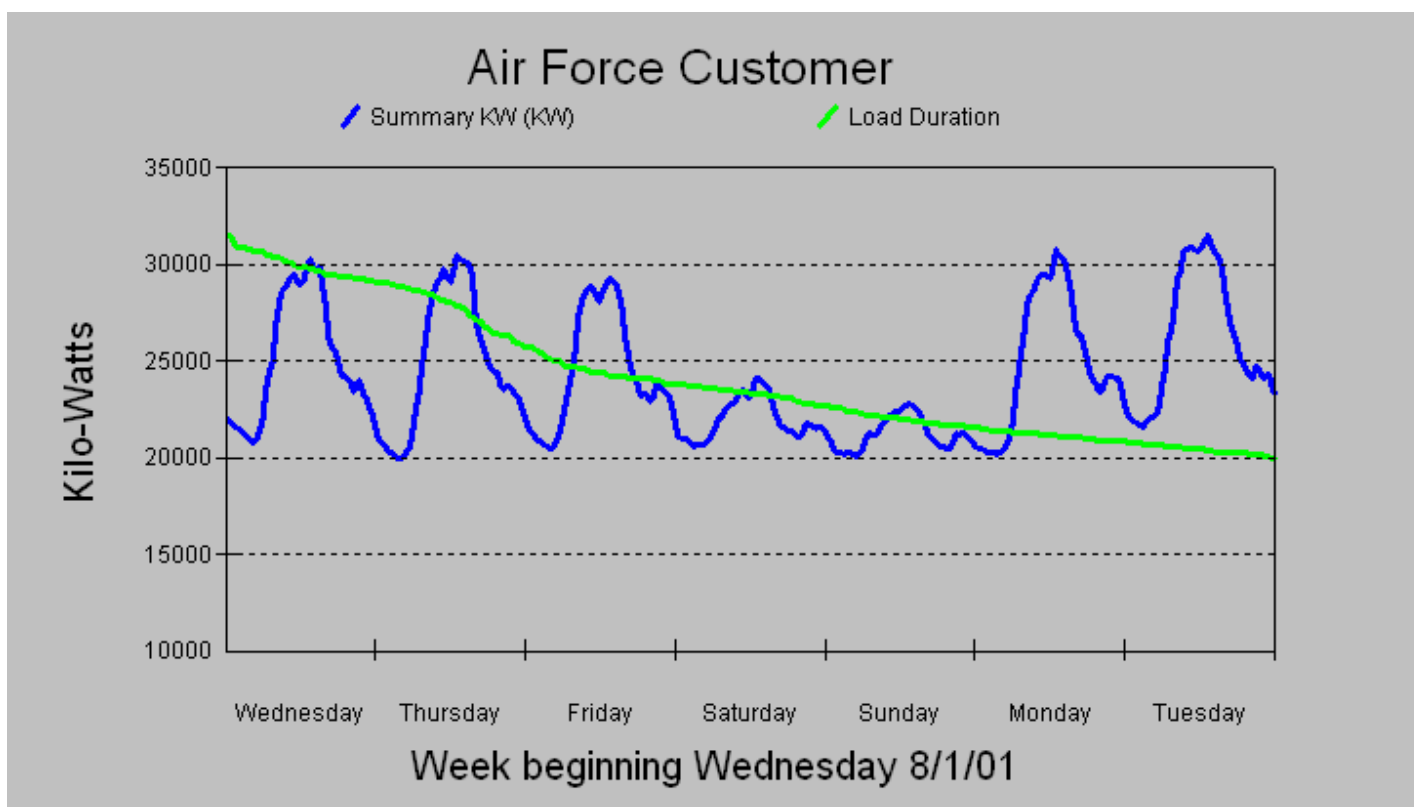
- Meter's don't save energy!
- Established baselines for comparable buildings
- Generated monthly “mock” bills for building energy managers
- Challenged building managers to reduce total consumption

The Application

Demand Reduction

- Interruptible service rate
- Established target demand level
- Must reduce to target demand level when called upon
- Work with Master meters at 2 service points
- SCADA control of on-base generation assets

Typical Base Demand



Results

Warner Robins Air Logistics Center

- Achieved annual cost reduction of over \$700,000 through reduced consumption
- Paid for metering installation in first year of metering system operation
- Customer billing complaints reduced to near zero
- Receiving over \$1,000,000 in annual bill credits on IS rate

Questions?